Claims

What is claimed is:

1. A system for enabling layer-3 communication within a sub-network for those members of the sub-network without layer-2 communication, the system comprising: a sending device, a receiving device, a forwarding agent, a first network device comprising a media access control address of the forwarding agent, the first network device interprets an address resolution protocol request from the sending device, and sends an address resolution protocol reply comprising the media access control address of the forwarding agent to the sending device.

2. The system of Claim 1 wherein the first network device comprises a proxy-proxy address resolution protocol function adapted to interpret the address resolution protocol request.

3. The system of Claim 1 wherein the first network device comprises a proxy-proxy address resolution protocol function adapted to send a reply to the sending device comprising the media access control address of the forwarding agent.

4. The system of Claim 1 wherein the receiving device comprises a network device comprising an internet protocol address and a media access control address.

5. The system of Claim 4 wherein the receiving device comprises a computer.

6. The system of Claim 1 wherein the first network device comprises a network device adapted to communicate through a plurality of network communication layers including layer-3.

7. The system of Claim 6 wherein the first network device comprises a switch.

8. The system of Claim 1 wherein the forwarding agent comprises network devices able to forward data-packets and communicate through a plurality of network communication layers including layer-3.

9. The system of Claim 8 wherein the forwarding agent comprises a router.

10. The system of Claim 8 wherein the forwarding agent comprises a firewall.

11. The system of Claim 8 wherein the first network device comprises a processor for processing the data-packets, a memory for storing program data-structures associated with the processor, a plurality of storage structures interactive with the processor, and a proxy-proxy address resolution protocol function within the memory and interactive with the processor.

12. A method to enable layer-3 communication within a sub-network for members of the sub-network without layer-2 communication, the method comprising the steps of: intercepting within a first function an address resolution protocol request from a sending device, the address resolution request intended for a receiving device, and replying from the first function to the sending device an address resolution protocol reply comprising a forwarding agent's media access control address.

13. The method of Claim 12 wherein the method comprises the further steps of: parsing the address resolution protocol request, determining the Internet protocol address of the receiving device, and verifying the sending device can communicate with the receiving device though layer-2.

14. The method of Claim 12 wherein the first function is included in a first network device adapted to communicate at layer-3.

15. The method of Claim 14 wherein the first network device comprises a computer.

16. The method of Claim 14 wherein the first network device comprises a proxy-proxy address resolution device.

17. The method of Claim 14 wherein the first network device comprises a switch.

18. The method of Claim 12 wherein the forwarding agent comprises a network device adapted to communicate through a plurality of communication layers including layer-3.

19. The method of Claim 18 wherein the forwarding agent comprises a router.

20. The method of Claim 18 wherein the forwarding agent comprises a firewall.

21. A signal-bearing media containing a program to enable layer-3 communication within a sub-network for members of the sub-network without layer-2 communication, the program comprising the steps of: intercepting within a first function an address resolution protocol request from a sending device, the address resolution request intended for a receiving device, and replying from the first function to the sending device an address resolution protocol reply comprising a forwarding agent's media access control address.

22. The program of Claim 21 wherein the program comprises the further steps of: parsing the address resolution protocol request, determining the Internet protocol address of the receiving device, and verifying the sending device can communicate with the receiving device though layer-2.

23. The program of Claim 21 wherein the first function is included in a first network device adapted to communicate through a plurality of communication layers including layer-3.

24. The program of Claim 23 wherein the first network device comprises a computer.

25. The program of Claim 23 wherein the first network device comprises a proxy-proxy address resolution device.

26. The program of Claim 23 wherein the first network device comprises a switch.

27. The program of Claim 21 wherein the forwarding agent comprises a network device adapted to communicate through a plurality of communication layers including layer-3.

28. The program of Claim 27 wherein the forwarding agent comprises a router.

29. The program of Claim 27 wherein the forwarding agent comprises a firewall.